ARCHITECTURUS TO HIS SON.

THE LAMP OF SCIENCE.

THE artist-architect must possess a certain knowledge of constructive science,—and that by no means superficial or hastily acquired,—as a basis of his art-work; but this is not the present point. The architect, as a man of business, must be not an artist alone, but a man of mechanical skill no less. The profession of an architect is not mere art; it is science like one: the architect must be not merely a player of melodies and harmonies to the eye, but a calculator of stability and equipoise,—and not merely such a calculator for the beauty which is in science, but a practical and responsible administrator of its principles for their utilitarian worth, as the master of the builder.

The influence of this question upon the minds of some architects of more practical bent, leads them to deplore so much the scientific shortcomings of the profession of the present day, that they declare for the revival of the ancient system, wherein the architect and the engineer were one. For instance, Bartholomew:—

"Of the injury which has occurred to practical building by the separation of the art into two branches of architecture and civil-engineering.—Formerly every architect was a civil engineer, and every civil engineer was an architect; but from the vast employment in modern times in the making of canals, docks, bridges, and railroads, the profession has become split up into two; and this has tended, perhaps more than any other circumstance, to the ruin of real practical science in architecture. The architect is now rarely able, from the want of an enlarged practical knowledge, to execute a great and extraordinary work," &c.

And certain it is, that so much higher is the merit assigned in every-day life to the utilitarian than to the beautiful,—so much greater the public appreciation of science than of art,—so much more ready the comprehension of the physical than of the spiritual,—so much greater the esteem for the labour of the hand than for the music of the soul; that between the most vulgar of practical engineers and the most refined of merely artistic architects, the preference, I fear, would be almost universally awarded to the former. At this moment, the profession of engineers is honoured far beyond the profession of architects; indeed, perhaps I ought to say, and with sorrow, the one is honoured, and the other almost despised.

A mighty edifice is demanded as a fit receptacle for a display of all the world's works of industry. A committee of the most distinguished architects are entrusted with the task; and a select few of the most eminent engineers are associated with them, to supply, if necessary (ought it to have been supposed necessary?) the element of mechanical science in perfection. Suggestions of design are gathered from all the states of Europe; honours of the first and second merit carefully awarded by the score as a return; months spent in deliberation and discussion; and what is the end? Knighthood, of course,—knighthood to one engineer, one builder, and one gardener. Has the genius of architecture been troubled with a dream all this time,—a nightmare? or is this strange story true? Ask your friends this question, my son. If the project had been a tunnel through a mountain or under a river,—a bridge to carry railway trains across a strait of the sea,—a running engine to outstrip the wind,—a ship to sail more swiftly than ever ship sailed before,—a wire to lead lightning talk along the bottom of the ocean,—or a road to reach the antipodes in a week,—nay, if it had been the making of a canal,—the ventilation of a mine,—the waterworks of a town,—or the drainage of a fen,—is there ever a gardener in the flesh at whose hands the engineers of England would have taken what we architects have taken at the hands of this new knight? What would Rennie, Stephenson, or BRUNEL say to such meddling with their business? What would Rennie, Stephenson, and Brunel, that are gone, have said? How would Smeaton or Telford have met such a thing? What would WREN have said? My son, if you would have me rest in my grave, see to it that your generation wipe off this stain.

How sadly deficient is our education of the architect. Not only is there no shame in our profession, so that a man of utter emptiness will no more blush than if he had no cause; but, positively, there is provided in our system no means of acquiring knowledge at all,—perhaps the very reason why there is no shame, as I say. Now, if art may be had by inspiration and a little practice, certainly science can not. A thing of experiment and calculation and memory, it must be laboriously learnt. And really, when we compare with the vast and varied realms of science involved in the practice of the engineer, the single small province which the architect requires, it seems folly to be deficient in one tittle of this, when the engineer is so perfect in that so much more extended field. It is true that the architect, as I have told you, has so many various subjects of attainment that he may well be almost bewildered to contemplate them; but science is perhaps the most easy of all his subjects, and he need never make a difficulty of that. It is of no more difficulty, as it is also of no less moment, than arithmetic itself; any one may learn it, and every one ought. A man must possess the feeling of the poet—born, not made—who would learn art: delineation demands the ready hand, which is no less a gift of nature; in building, the acquisition of experience takes years, not hours, to gain; while the lamp of learning, if it is to be lit in the caverns of archæology, involves diligent research, if not a *gusto* for the traditionary; but science—the plain straightforward matter of university lectures—needs only a book and a slate and an evening hour.

Yet this very subject of science is the one in respect to which the acknowledged deficiencies of the architectural practitioners of the present day are perhaps most observable. It is Precedent that has done it. Some of us have of late contended anxiously against this Precedent, as a bad idol, to be for ever overthrown; and the only defence which could be set up for it, with a pretence of success, has been these claims,—that it is a good thing and sanctified to reverence the relics of departed worth, and that to set aside the attainments of the ages is but the fallacy of him only who forgets that "through the ages one increasing purpose runs." But this is not the point; these precedents are not the system of architectural design which, but a few years ago, held such high-handed rule. That Precedent, now cast down, and almost forgotten and denied, was a standing order, that he who should refuse to acknowledge what was designated the *authority* of what was designated *antiquity*, or who should bow down before aught else and worship it, was simply lunatic. Extending itself into other systems also, this principle led through imitation to mimicry, and through mimicry to mockery, till the scientific structures of former times became so travestied in modern confectioners' work, and every reference to the science, which was their truthful basis, so utterly forgotten, if not repudiated, that Bartholomew (to quote him again) exclaims, in anger, "We have not a single building, erected in England since the eighteenth century, which exhibits the least approach to the exquisite ingenuity exhibited in the union of outward beauty and innate science by the edifices erected in an age deemed barbarous;" and again, "The science of *architectural dynamics*, with shame be it spoken, is actually involved in such mystery, that it may be said to be almost dead to the builder, except in great works of engineering;" and again, "There is at present such a gulf cast between architecture and science, that architecture, instead of improving and blending more and more with science, degenerates and becomes every day more and more detached from it." There is serious truth in the bitterness of this: if our age is to have a new style of its own, by any means or by any accident, it will never be by such means as those employed during the last two centuries in reproducing one ancient style after another in mere pedantry and hollow semblance—dead bones stuffed with straw, or by any accident which happens to stop short of an occasion for a return to fundamental scientific thought. Oh, that architects had been true to their mission (if they could have been) in respect to this Crystal Palace of 1851! taking candidly the glorious chance-suggestion of the clever gardener—taking it cheerfully and honourably off his hands *and out of his hands* at once, elaborating it scientifically and beautifully, as the architect alone of course can do. What an opportunity for an epoch! Were this building, instead of a positively unscientific and decidedly unsightly mere leviathan—instead of a grand and noble fancy, carried into effect without skill and without taste—instead of a mighty step in art, all profitless and astray, because unguided by the artist's hand—instead of a great Victoria Regia, all beautyless, contracted, and awry, because there was no Paxton's fostering hand to cherish it,—were it but a building *architecturally* built, however simply scientific, and however plainly if truly artistic, it would have cost the British public less rather than more of their dearly beloved money, and they would never come to issue the fiat, as assuredly they will do (or lament they have not done), to kill it to preserve its honour—to pull it down to save it from ridicule and wreck.

The science of the architect is the philosophical knowledge of that for which the practical builder depends upon his rule of thumb. Such empirical knowledge is not necessarily erroneous by any means; it is, on the contrary, elementarily sound, as the fruits of observation and experience; but it is necessarily more or less imperfect, indefinite, and uncertain, because unsystematic and incomplete. To collect and systematise the results of observation is the work of philosophy; and the product—clearing itself, by the mutual explanations of its elements, of the errors of empiricism, and completing, by the mutual assistance of its elements, the entirety of a system—becomes a science. A perfect science has no mystery: that there is a cause for everything is its first principle, and it lays bare all causes, and foresees all effects. It is the means by which the Maker of the world gives to man a delegation of his own power.

I have spoken of Delineation as the servant of Art: I cannot speak so of Science. This is no servant, but a master—masculine and immoveable. Art is the dress, rather—the garment of beauty and honour, giving majesty to his mien, dignity to his action, elegance to his form. The rude Hercules becomes graceful as an Apollo. But the manly front remains uneffeminated, mark you: art drapes the limbs, but their outline is still there. I would give a year of my life, my son, to impress this upon you. For if even I could dismiss the mockeries of counterfeit structure as dissipated and gone, what have we left in this age, tell me, after all? Where is the old-world unemasculated building, where every feature and every limb presented to your eye its unconcealed, undisguised, unhesitating honesty? Beside this draped man of the old Egyptians and Greeks, and the old Christians as well, our figures are but empty effigies,—beside their righteous structure, our work is but mockery,—beside those men of manly speech and doing, we are but monkeys of mere mimicry. And why? Because with them Art was the servant of Science: with us Science is made (as if it were possible) the servant of Art,—or rather Art has been taken to be but a shadow of unsubstantial shape and show, and Science pressed into its service to clothe its deceptive limbs in seeming flesh and blood, and to distend its hollow visage to bear a fallacious bloom.* K.

GARDEN WALLS OF GLASS:—The *Gardeners' Chronicle* mentions a proposal by Mr. C. Ewing, in Anglesea, to construct garden walls of glass and iron only. The plan is, to have iron uprights firmly fixed into the ground, and faced with glass on both sides, the space between the two faces being occupied by trees planted and trained in the usual way. The glass is all moveable, so that perfect ventilation, as well as perfect shelter, is secured.

* To be continued.